Fall 9-1-2005

FOR 303.01: Introduction to Geographic Information Systems

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FOR303 Introduction to Geographic Information Systems

Fall 2005

Instructor:	Woodam Chung
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Office Hours:	MW 10:00A – 12:00P, TR 11:00A – 12:00P

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Class Times:	Two 1-hour lectures (FOR301)	:	TR 8:10A - 9:00A
	One 2-hour lab (JOUR106)	:	T 9:10A – 11:00A (section 2)
			R 9:10A – 11:00A (section 3)

Optional Text:

- Clarke, K. C. 2002. “Getting Started with Geographic Information Systems", 4th ed. Prentice-Hall
- Tim Ormsby, Eileen Napoleon, Robert Burke, Laura Feaster, and Carolyn Groessl. 2004. “Getting to know ArcGIS Desktop”, Second Edition. ESRI Press

Other references:

- Burrough, P.A. and Rachael A. McDonell. 1998. Principles of Geographic Information Systems. Oxford University Press.
- Aronoff, Stan. 1989. Geographic Information Systems: A Management Perspective. WDL Publications.
- Bonham-Carter, G. F. 1994. Geographic Information Systems for Geoscientists. Pergamon.
- Robinson, A.H. et al. 1995. Elements of Cartography. John Wiley & Sons.

1. Course Descriptions:

The purpose of this course is to help students understand the basic GIS concepts and techniques. Class activities will examine technical concepts of ground coordinates and maps, data structures, the integration of map data and tables of descriptive information linked to maps, and analytical use of spatial information. The laboratory components of this course will provide the students with a basic working knowledge of the ArcGIS software package.

2. Course Learning Objectives:

- Understand the basic terminology, structures, concepts, and theories of GIS
- Gain a basic skill to perform spatial analyses using spatial and attribute data within a GIS environment.
- Investigate in-depth GIS processes that are of interest to you.

3. Course Policies:

- All assignments are due at the BEGINNING of lab.
- Late assignments will be penalized 10% per day.
- All work must be neat, legible and complete.
- All figures, drawings, and tables should be titled.

- Work that does not confirm to the above requirements and the designated format may not be accepted.
- There will be no make-up exams.
- Any requests for deviations in the course policies, schedule, or deadlines must be made in writing to the instructor. These requests should be made in the form of a business letter that clearly states and defends your request. Email is acceptable but should be confirmed as having been received.

4. Grading:

- First Exam 25%
- Second Exam 25%
- Final Project 30%
- Lab Exercises 20%
  100%

- Letter grades will be based on the following. Depending upon class performance, the curve may be shifted downward but not upward.

A	93% – 100%	C	73% – 77%
A-	90% – 93%	C-	70% – 73%
B+	87% – 90%	D+	67% – 70%
B	83% – 87%	D	63% – 67%
B-	80% – 83%	D-	60% – 63%
C+	77% – 80%	F	0% – 60%

5. Tentative Course Schedule:

Week	***Date***	***Lecture Topic***	***Readings (Clarke K.C.)***
1	Aug. 30	Welcome to GIS	
	Sep. 1	What is a GIS	Chap. 1
2	Sep. 6	History of GIS	Chap. 1
	Sep. 8	Cartographic Fundamentals I. (in General)	Chap. 2
3	Sep. 13	Cartographic Fundamentals II. (Map scale and projection)	Chap. 2
	Sep. 15	Cartographic Fundamentals III. (Coordinate systems)	Chap. 2
4	Sep. 20	Data Representation I. (Map as numbers)	Chap. 3
	Sep. 22	Data Representation II. (Raster data structure)	Chap. 3
5	Sep. 27	Data Representation II. (Raster data structure)	Chap. 3
	Sep. 29	Data Representation III. (Vector data structure)	Chap. 3
6	Oct. 4	Data Representation III. (Vector data structure)	Chap. 3
	Oct. 6	Reviews for Midterm	
7	Oct. 11	Midterm Examination I.	
	Oct. 13	Final Project Descriptions	
8	Oct. 18	Data Representation IV. (TIN and data format)	
	Oct. 20	Data Representation V. (Future data models)	
9	Oct. 25	Data Management I. (Data input)	Chap. 4
	Oct. 27	Data Management II. (Data editing)	Chap. 4
10	Nov. 1	Data Management II. (Data editing)	
	Nov. 3	Data Management III. (DBMS)	Chap. 5.1
11	Nov. 8	Data Management III. (DBMS and metadata)	

	Nov. 10	Spatial Analysis Functions I. (Spatial queries)	Chap. 5
12	Nov. 15	Spatial Analysis Functions I. (Spatial queries)	Chap. 5
	Nov. 17	Spatial Analysis Functions II. (Other analytical functions)	Chap. 6
13	Nov. 22	Data Accuracy	
	Nov. 24	Thanksgiving vacation!!!	
14	Nov. 29	GIS Outputs & Reviews for Midterm	Chap. 7
	Dec. 1	Midterm Examination II.	
15	Dec. 6	Project Presentations	
	Dec. 8	Project Presentations	
16	Dec. 14	Final week – Project due by 6:00PM	

6. Tentative Lab Schedule:

Week	***Dates***	***Lab Topic***
1	Aug. 30 & Sep. 1	No labs this week
2	Sep. 6 & 8	Lab #1. GIS and WWW
3	Sep. 13 & 15	Lab #2. Map Fundamentals
4	Sep. 20 & 22	Lab #3. Introduction to ArcGIS
5	Sep. 27 & 29	Lab #3. Introduction to ArcGIS (continued)
6	Oct. 4 & 6	Lab #4. Manipulating Theme Tables in ArcGIS
7	Oct. 11 & 13	Lab #5. GPS Field Exercise
8	Oct. 18 & 20	Lab #6. Reprojecting coordinate data
9	Oct. 25 & 27	Lab #7. Terrain Analysis with Raster Data
10	Nov. 1 & 3	Lab #8. Manipulating Theme Polygon Attributes in ArcGIS
11	Nov. 8 & 10	Lab #9. Spatial Analysis with Lubrecht Forest Data
12	Nov. 15 & 17	Lab #9. Spatial Analysis with Lubrecht Forest Data (continued)
13	Nov. 22 & 24	Thanksgiving – No labs
14	Nov. 29 & Dec. 1	Working on group projects
15	Dec. 6 & 8	Lab #10. Site-Suitability Analysis
16	Dec. 13 & 15	Final week – No labs